

Mosaic Fertilizer, LLC - New Wales Concentrates Plant

3095 County Road 640 W

Mulberry, FL 33860-8875

Polk County

Summary from the Proposed Permit: The applicant, Mosaic Fertilizer, LLC applied on October 25, 2019, to the Department of Environmental Protection for a permit revision, Permit No. FL0036421 to Mosaic Fertilizer, LLC. for the Mosaic Fertilizer, LLC – New Wales Concentrates Plant. This permit revision authorizes a expansion of the facility's lined South phosphogypsum stack (South Gypstack) following extensive subsurface exploration work that was reviewed by the Department, including the State Geologist and other Department engineering and geology professionals, and includes provisions for ground stabilization, enhanced groundwater monitoring, and ongoing subsurface monitoring. This permit revision will not affect the quality or quantity of surface water discharge from the facility's only active NPDES outfall, Outfall D-006. This permit revision continues the existing surface water monitoring program for this facility.

Surface Water Discharge: The referenced process wastewater and contaminated non-process wastewater for phosphate fertilizer manufacturing are defined in 40 CFR 418.11(b) and 418.11(c), respectively, and phosphate mining process generated wastewater is defined in 40 CFR 436.181(e).

Existing Outfall D-006 discharges treated process wastewater, contaminated non-process wastewater including excess groundwater from production and recovery wells, and stormwater directly to South Prong Alafia River, Class III Fresh Waters within WBID# 1673. The South Prong of the Alafia River is a tributary of the Alafia River, a Class III Fresh Water body.

Ground Water Discharge: The facility has a potential for ground water discharges from the lined phosphogypsum stack, unlined process-water cooling pond system, and the unlined Auxiliary Holding Pond (AHP). A Ground Water Monitoring Plan (GWMP) has been approved for the site to monitor such discharges.

Dates: This permit became effective July 31, 2018, and expires July 30, 2023, and was revised before on December 13, 2018, January 22, 2019, and September 13, 2019. EPA provided a review of the permit in 2018 during the 30-day review period and did not provide any comments to FDEP.

Quick summary of Modification: The facility currently has an active 704 acre phosphogypsum area referred to as the South Stack and this modification would add a 231 acre stack expansion in capacity. A sinkhole was discovered in the south stack in 2016 and remedial actions were authorized under the provisions of a Consent Order. The North stack is closed under a separate permit (FL0178527).

Detailed Facility Description: The Mosaic Fertilizer, LLC (Mosaic) New Wales Concentrates Plant (also referred to as New Wales Facility, New Wales Plant, or New Wales) manufactures ammoniated phosphate fertilizers (MAP and DAP) and animal feed ingredients. The New Wales Plant produces phosphoric acid and sulfuric acid as part of the manufacturing process, but consumes most of the acid internally during the manufacture of the fertilizer and animal feed ingredients products. Ancillary operations include a prilled sulfur melting process, molten sulfur storage and processing, storage tanks, phosphoric acid clarification areas, storage warehouses, and other activities in support of fertilizer

manufacture. Phosphogypsum produced as a waste by-product of the phosphoric acid production, is stored at the facility by placing the phosphogypsum in a lined 704-acre phosphogypsum storage area (gypstack, or stack), located immediately south of the main cooling pond. The active phosphogypsum stack system consists of 60-mil High Density Polyethylene (HDPE) lined, Phase I (394 acres) and Phase II (310 acres) stack expansions, comprising a combined 704-acre lined South Phosphogypsum Stack. The active system also includes a 280-acre unlined cooling pond system, a 94-acre below-grade unlined Auxiliary Holding Pond (AHP) located west of the main cooling pond, and two lined AHPs identified as LESP1 & LESP2 totaling 70 acres on top of the unlined, closed North Phosphogypsum Stack. The closure related activities associated with the North Phosphogypsum Stack are authorized under a separate permit (FL0178527).

Sinkhole Issue Description: The west compartment of the Phase II stack expansion was modified following the discovery of a sinkhole feature in 2016, and the subsequent completion of its remediation as acknowledged by the Department in its letter dated March 6, 2018. The modified Phase II West compartment includes an exclusion zone to establish a buffer area surrounding the remediated sinkhole feature which will continue to be monitored to document the continued effectiveness of the remediation. The areas north and south of the exclusion zone were modified as approved by the Department for continued storage of gypsum and reactivated. The sinkhole remedial actions to address the release of process water, reestablish the integrity of the underlying compromised confining unit, as well as modifications of the west compartment as discussed above, were authorized under the provisions of Consent Order OGC File No. 16-1536, executed on October 24, 2016. The facility is in compliance at the time of this review.

Detailed Expansion Description: A new 60-mil HDPE-lined Phase III (231-acre) stack expansion is authorized under PA File No. FL0036421-022-IW1S/RA and will be divided into two sections: Phase III East and Phase III West. The Phase III East section will be built first followed by the Phase III West section. Activation of each section is subject to Department oversight and approval of activities identified in the compliance schedules section of this permit. The proposed Phase III stack expansion area meets the stack expansion design requirements of Chapter 62-673, F.A.C., and was subject to extensive subsurface explorations that have been reviewed by the Department, including the State Geologist and other Department engineering and geology professionals. Prior to placing a section of the stack expansion area into operation this permit requires ground improvements be successfully completed and approved for that section by the Department, in consultation with the State Geologist and other Department engineering and geology professionals, to ensure each section is suitable for the proposed Phase III stack expansion. The proposed expansion also provides additional safeguards including a 3-tiered monitoring system for early detection of subsurface activity. The 3-tiered monitoring system is referred to herein as the Subsurface Activity Early Detection System (SAEDS).

Permits Associated with this Facility: FLL027600 is a minor biosolids permit and FL0027600 is a major permit that is administratively continued as of 6/17/2019. Both permits are associated with the Fort Green Mine Complex which located 16 miles away from the New Wales facility. FL0178527 is a major permit that covers the North Stack Closure that expires 9/30/2023.

The effluent table (Table 2) for Outfall 006 are almost identical from the draft permit to this revision. R4 review found these minor differences:

Specific conductance (downstream)- weekly when discharging in draft permit changed to monthly when discharging in proposed.

Turbidity split into maximum and monthly average in proposed, listed together as monthly average, daily maximum in draft

Phosphorus-lb/month reporting taken out of proposed but can be calculated from the pounds per day reporting that is still required.

Nitrogen-lb/month reporting taken out of proposed but can be calculated from pounds per day required reporting.

Nitrogen, Ammonia Total as N (effluent/limit ratio)-Units of measurement changed from mg/L to ratio

Chlorophyll a-units changed from mg/L to ug/L in proposed

Department Changes Since Draft Permit according to Amendment to the Fact Sheet

1. Introductory pages:

Various minor changes were made to the facility description and introductory pages of the permit, most of these formatting changes. Additionally, as requested by the permittee, the option for the permittee to operate mechanical evaporators was removed, since the permittee no longer expects to operate these evaporators.

2. Section III – Ground Water Requirements:

a. Upper Floridan monitoring well NWC-44-F1 (MWC-61) was relisted from a compliance well to a background well, namely MWB-61, since it is located upgradient relative to the south gypstack expansion area and the regional flow of groundwater in the Upper Floridan Aquifer.

b. Monitoring well NWC-33-F2, which is open through the upper and lower portions of the Upper Floridan Aquifer, has been added to the list of wells to be monitored weekly through 12/31/2022 (then quarterly thereafter as with most well on-site).

c. For clarity, replacement monitor wells for MWI-17, MWI-18, MWC-19, MWI-20, MWI-21 and MWC-22 were renamed MWI-17R, MWI-18R, MWC-19R, MWI-20R, MWI-21R and MWC-22R respectively instead of MWI-48, MWI-49, MWC-52, MW1-50, MW1-51 and MWC-52 (Groundwater Requirements-Table 6 and Section III.27, page 37 of 67.)

3. Section V – Operation and Maintenance Requirements:

a. Based on collected data, the requirement to monitor pH daily for receipt of treated or untreated water

from Mosaic's Plant City, Green Bay, and Nichols facilities has been reduced to weekly. This is outlined in Specific Conditions V.A.7 and 8.

b. Specific Condition V.B.2 was updated to reflect the permittee's request for the option to subdivide the Phase III East area into north and south sections, if needed.

4. Section VI – Schedules:

Specific Condition VI.16 was adjusted to require the permittee to independently submit completion documentation for each section of Phase III East (see Item IV.3, above), if they choose to construct and operate the Phase III East area in sections.

5. Attachments:

- a. Attachment G from the Draft Permit was removed because it showed the area for mechanical evaporators, which are no longer expected to operate at the facility (see Item IV.1, above).
- b. The replaced Attachment G shows the new option for North South subdivision of Phase III East.
- c. Attachment N was updated to include tomographic imaging (i.e., mapping) of the subsurface of the facility, using the passive seismic monitoring system.

Conclusions: There are minor changes to the permit's Table 2 but nothing substantial that will change the effluent. The expansion is needed due to the closure of the North Stack (see FL0178527) and sinkhole issues in the existing south stack. There will be subsurface explorations reviewed by FDEP and the state geologist and a 3 tiered monitoring system for early detection of subsurface activity.

